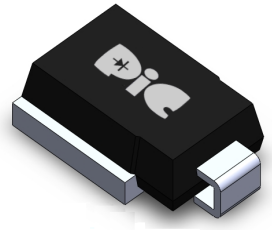
SM6Z10A THRU SM6Z43A

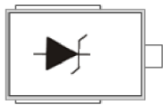
Surface Mount Transient Voltage Suppressors Working Voltage:10 to 43V
Peak Pulse Power:4600W

Features

- Optimized glass passivated chip
- T_J = 175 °C capability suitable for high reliability and automotive requirement
- 4600 W peak pulse power capability with a 10/1000 μs waveform, repetitive rate (duty cycle):0.01 %
- Meet ISO 7637-2 5a/5b and ISO 16750 load dump test (varied by test condition)
- AEC-Q101 qualified
- Low leakage current
- Low forward voltage drop
- Uni-directional polarity
- Excellent clamping capability
- Very fast response time
- RoHS compliant

DO-218AB





Mechanical Data

- Case: DO-218AB
- Molding compound: UL94V-0 flammability
- Polarity: Heatsink is anode

Maximum Ratings(T_A=25℃ unless otherwise noted)

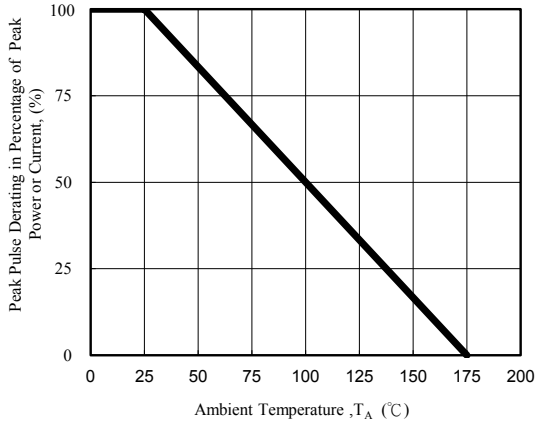
Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000μs waveform(1)	P_{PP}	4600	W
Peak power dissipation with a 10/10,000μs waveform	P_{PP}	3600	W
Peak pulse current with a 10/1000μs waveform(1)	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at T_L = 25 °C	P_D	6.0	W
Peak forward surge current 8.3 ms single half sine-wave	I_{FSM}	600	A
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to +175	°C

Note:

(1)Non-repetitive current pulse per Fig.2 and derated above TA= 25 °C per Fig.1

Surface Mount Transient Voltage Suppressors Working Voltage:10 to 43V Peak Pulse Power:4600W

Ratings and Characteristics Curves (T_A=25℃ unless otherwise noted)



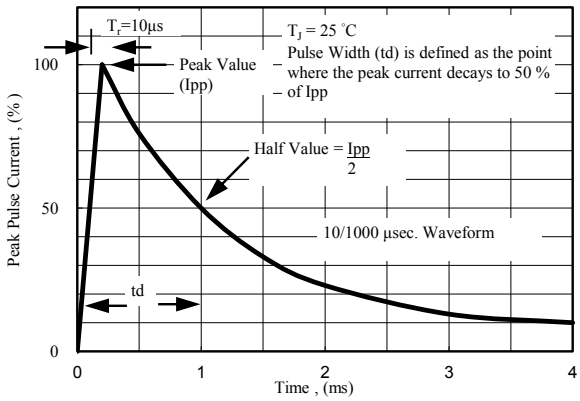


Fig. 2 - Pulse Waveform

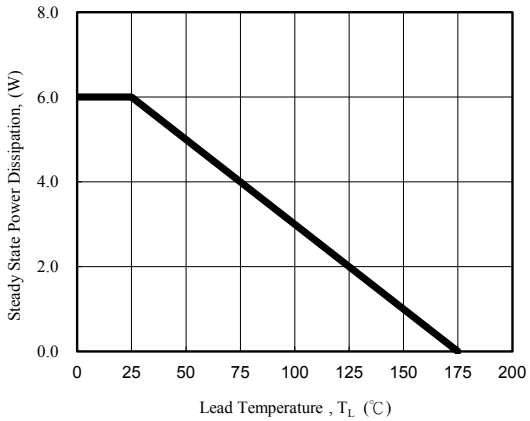


Fig. 3 - Steady State Power Derating Curve

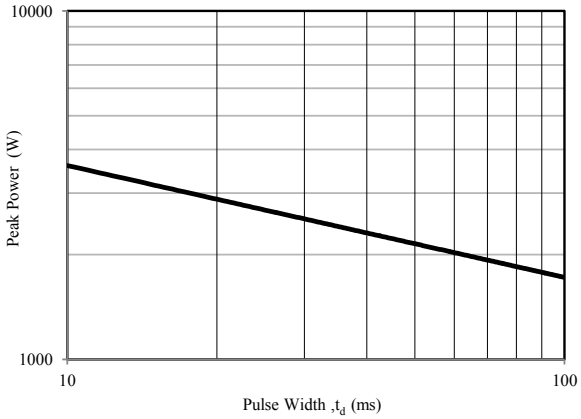
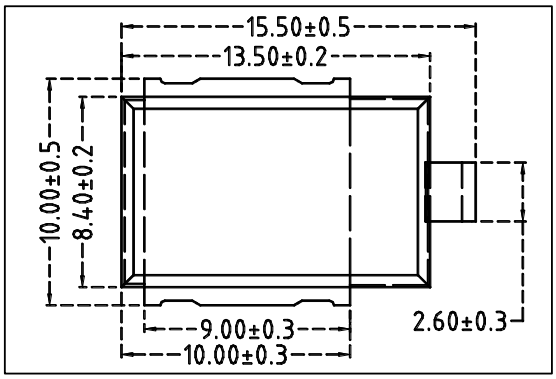
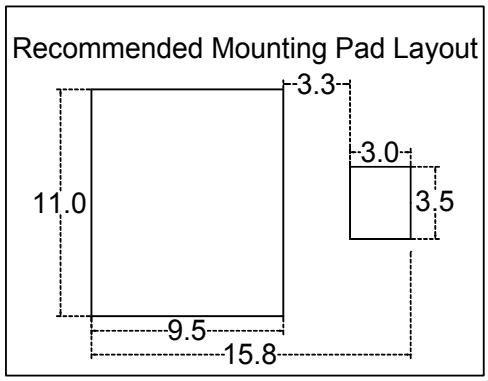
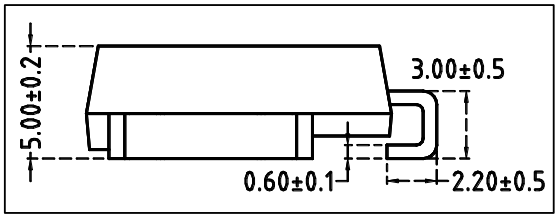


Fig. 4 - Peak Pulse Power Rating Curve

Package Outline Dimensions (millimeters)







Surface Mount Transient Voltage Suppressors Working Voltage:10 to 43V
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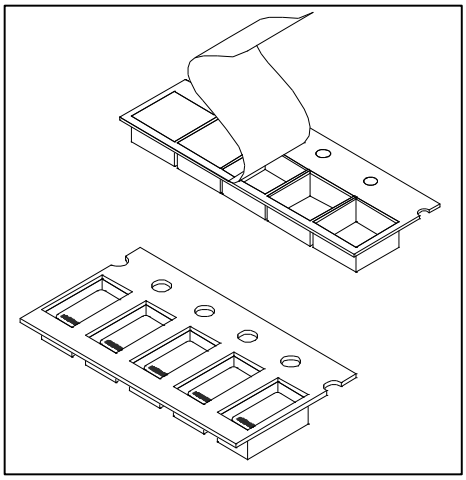
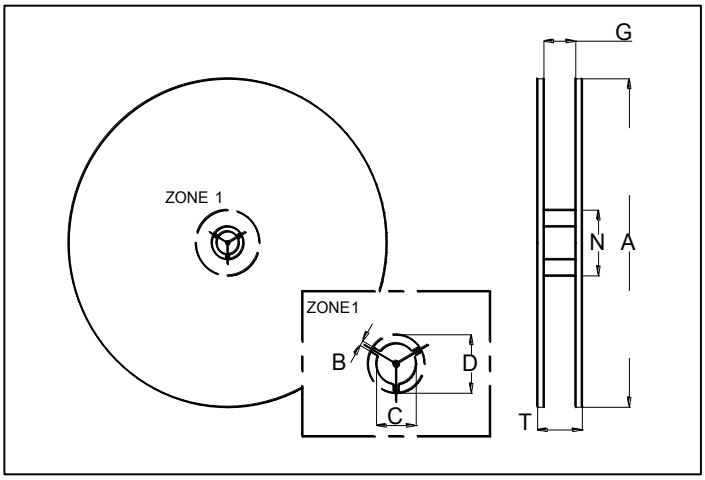
Surface Mount Tape and Reel Packaging





Dimensions in Millimeters (inches)

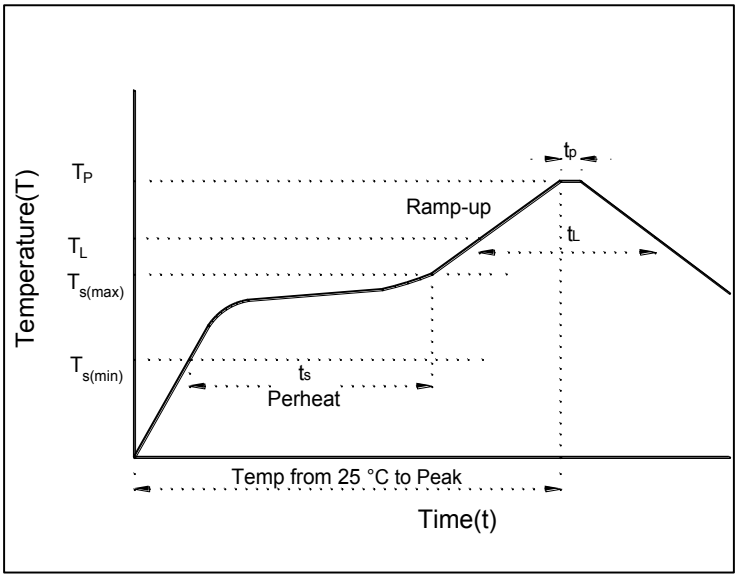
TAPE SIZE	A MAX.	B MIN.	C	D MIN.	N MIN.	G MAX.	T MAX.
24 mm (0.945)	330 ± 2.0 (13.0 ± 0.079) 178 ± 2.0 (7.0 ± 0.079)	1.5 (0.059)	13.5 ± 0.50 (0.53 ± 0.02)	20.2 (0.795)	50 (1.97)	26.4 (1.039)	30.4 (1.197)

Recommended Soldering Parameters

IR-Reflow Condition			
Pre Heat	Temp. min	150	℃
	Temp. max	200	℃
	Time(min to max)	60-180	sec
Ramp up rate (150-200℃)		<3	℃/sec

Reflow	Liquidus Temp.	>220	℃
	Peak Temp.	245	℃
	Time(Liq. to Peak)	60-150	sec
Ramp up rate (220-200℃)		<3	℃/sec
Time within actual peak temp.		10-30	sec

Ramp down Rate	<5	℃/sec
Time(25℃ to Peak temp.)	<6	min
Do not exceed	280	℃



Surface Mount Transient Voltage Suppressors Working Voltage:10 to 43V
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Electrical Characteristics(T_A=25℃ unless otherwise noted)

Part Number (Uni)	Breakdown Voltage V_{BR} @I_T			Maximum Reverse Leakage I_R @V_{RWM} (uA)	Maximum I_R @V_{RWM} T_J=175 (uA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP} (A) (1)	Maximum Clamping Voltage V_C@I_{PP} (V)
	Min (V)	Max (V)	I_T (mA)					
SM6Z10A	11.1	12.3	5.0	15	250	10	271	17.0
SM6Z11A	12.2	13.5	5.0	10	150	11	253	18.2
SM6Z12A	13.3	14.7	5.0	10	150	12	231	19.9
SM6Z13A	14.4	15.9	5.0	10	150	13	214	21.5
SM6Z14A	15.6	17.2	5.0	10	150	14	198	23.2
SM6Z15A	16.7	18.5	5.0	10	150	15	189	24.4
SM6Z16A	17.8	19.7	5.0	10	150	16	177	26.0
SM6Z17A	18.9	20.9	5.0	10	150	17	167	27.6
SM6Z18A	20.0	22.1	5.0	10	150	18	158	29.2
SM6Z20A	22.2	24.5	5.0	10	150	20	142	32.4
SM6Z22A	24.4	26.9	5.0	10	150	22	130	35.5
SM6Z24A	26.7	29.5	5.0	10	150	24	118	38.9
SM6Z26A	28.9	31.9	5.0	10	150	26	109	42.1
SM6Z28A	31.1	34.4	5.0	10	150	28	101	45.4
SM6Z30A	33.3	36.8	5.0	10	150	30	95	48.4
SM6Z33A	36.7	40.6	5.0	10	150	33	86	53.3
SM6Z36A	40.0	44.2	5.0	10	150	36	79	58.1
SM6Z40A	44.4	49.1	5.0	10	150	40	71	64.5
SM6Z43A	47.8	52.8	5.0	10	150	43	66	69.4

NOTE:

1.Surge current waveform is defined at 10/1000uS waveform

2.For all types maximum VF = 1.9 V at IF = 100 A measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

Ordering Information

Part Number	Description	Quantity
SM6Z10A~SM6Z43A	DO-218AB / TR	750 pcs

Surface Mount Transient Voltage Suppressors Working
Voltage:10 to 43V
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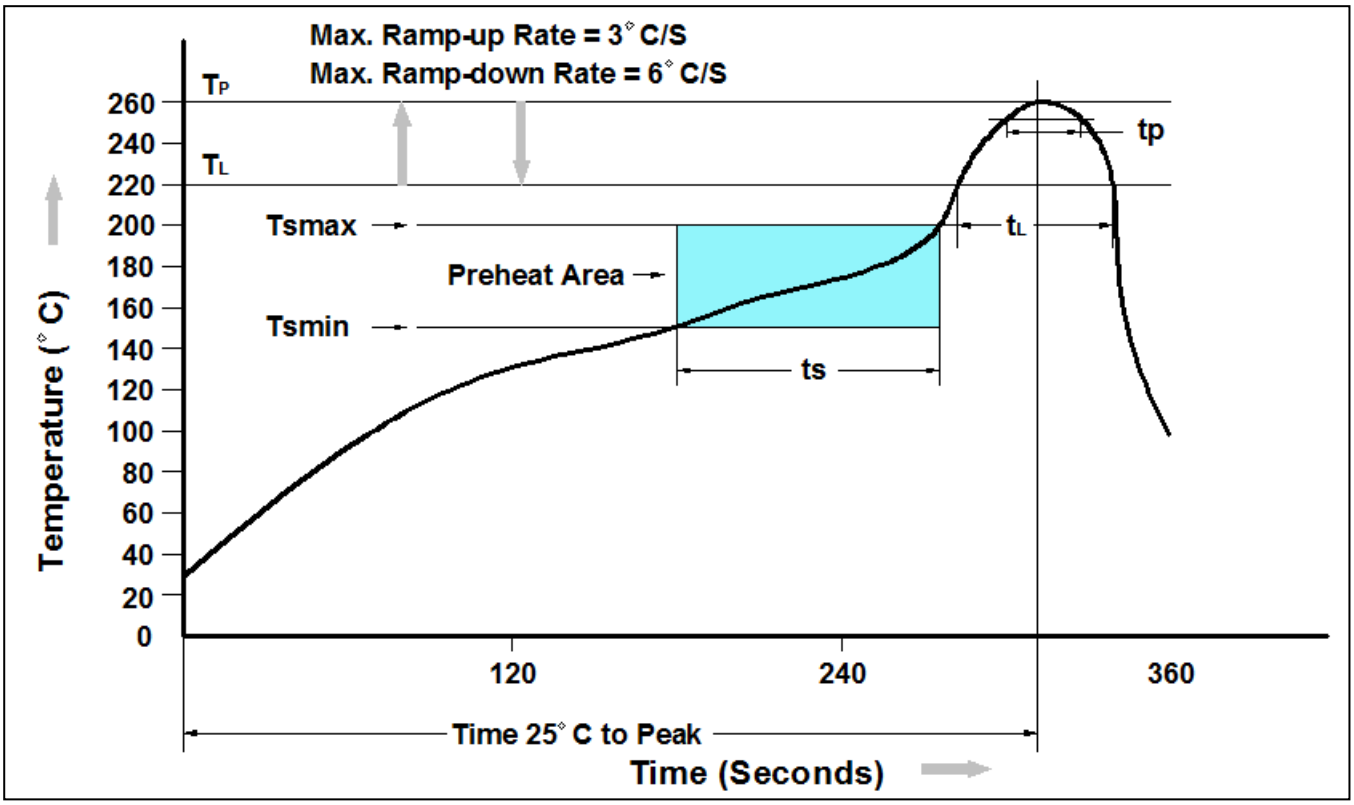
Recommand IR Reflow Soldering Thermal Profile



Profile Feature	Pb-Free Assembly Profile
Temperature Min. (Tsmin)	150°C
Temperature Max. (Tsmax)	200°C
Time (ts) from (Tsmin to Tsmax)	60-120 seconds
Average Ramp-up Rate (tL to tP)	3°C/second max.
Liquidous Temperature (TL)	217°C
Time (tL) Maintained Above (TL)	60 – 150 seconds
Peak Temperature	260°C +0°C / -5°C
Time (tP) within 5°C of actual Peak Temperature	30 seconds
Ramp-down Rate (TP to TL)	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.

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